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LAUNCH SERVICES PROGRAM

# **NASA Launch Services Program**

**Discovery 2010 AO Potential Bidders Conference  
January 11, 2010**

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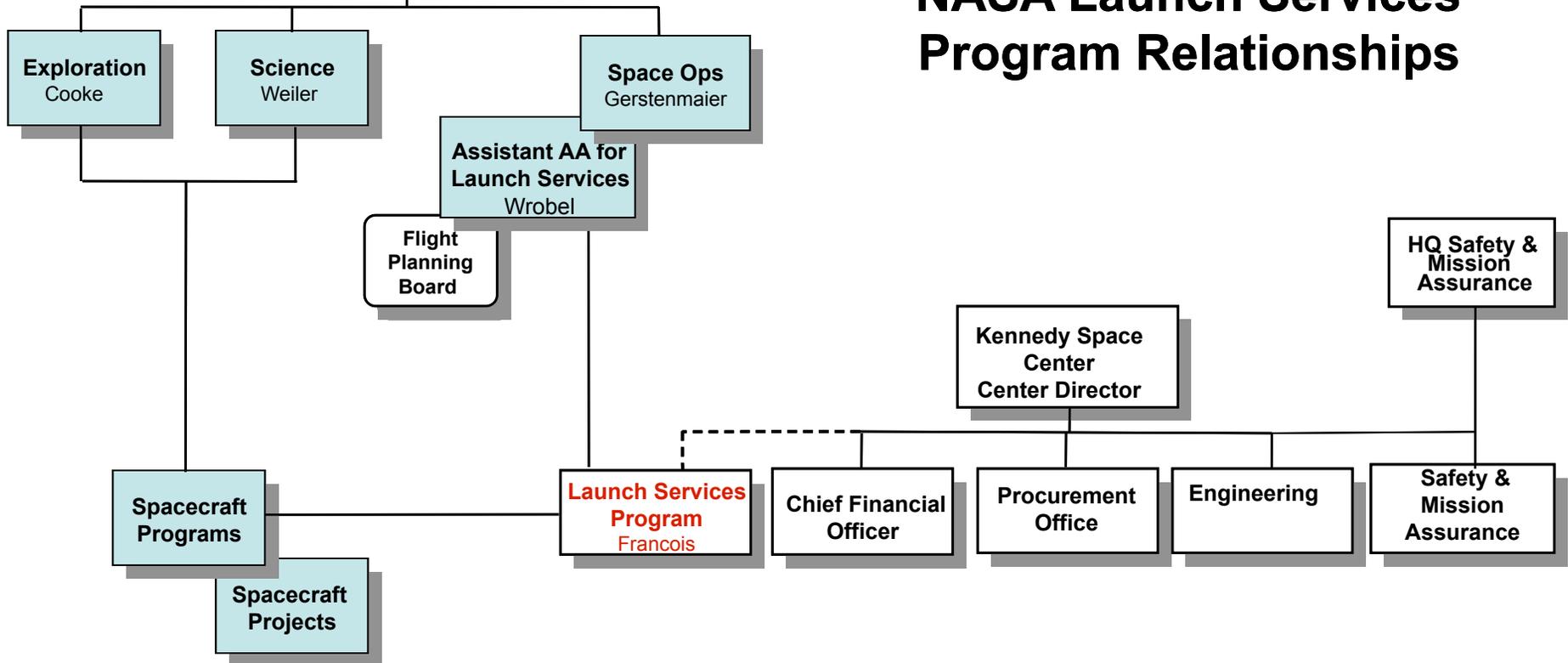


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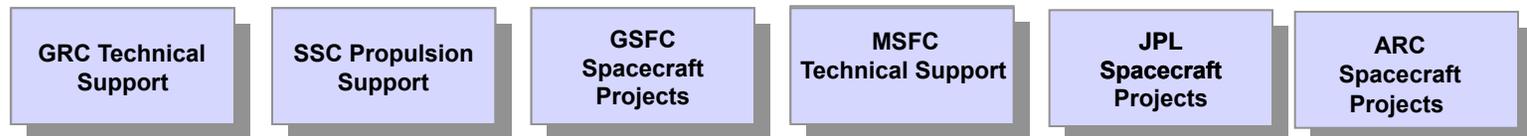
**NASA HQ**  
Bolden

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# NASA Launch Services Program Relationships



## Interfaces to other NASA Centers





# Launch Services Program

The Launch Services Program provides management of the launch service, technical oversight of the launch vehicle production/test, coordinates and approves mission-specific integration activities, provides mission unique launch vehicle hardware/software development, provides payload-processing accommodations, and manages the launch campaign/countdown for NASA and NASA sponsored Payloads.



# LSP Functional Structure

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- **LSP procures/provides a Launch Service**
  - Its more than the basic launch vehicle
  - We don't buy a tail number
  - This is a commercial FFP procurement with additional insight and oversight
- **To enable this, LSP has two functional sides**
  - **Mission integration**
    - » Mission Integration team assigned to each mission
    - » Manages mission specific procurement, integration, and analysis
    - » Includes launch site integration and processing
  - **Fleet management**
    - » Personnel assigned to each contracted rocket
    - » Includes resident offices within the production facilities of all active providers
    - » We watch the production and performance of entire fleet – we certify the manufacture's production line, not just a particular unit (tail number)
    - » We have a say in any change/upgrade/anomaly
    - » Big stick – no-go for launch
- **Interface with Safety and Mission Assurance**
  - Safety
  - Quality



# Technical Information flow into the MIT

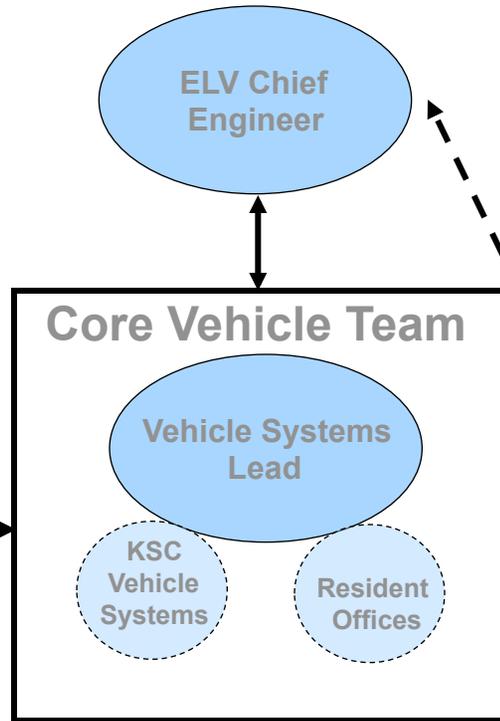
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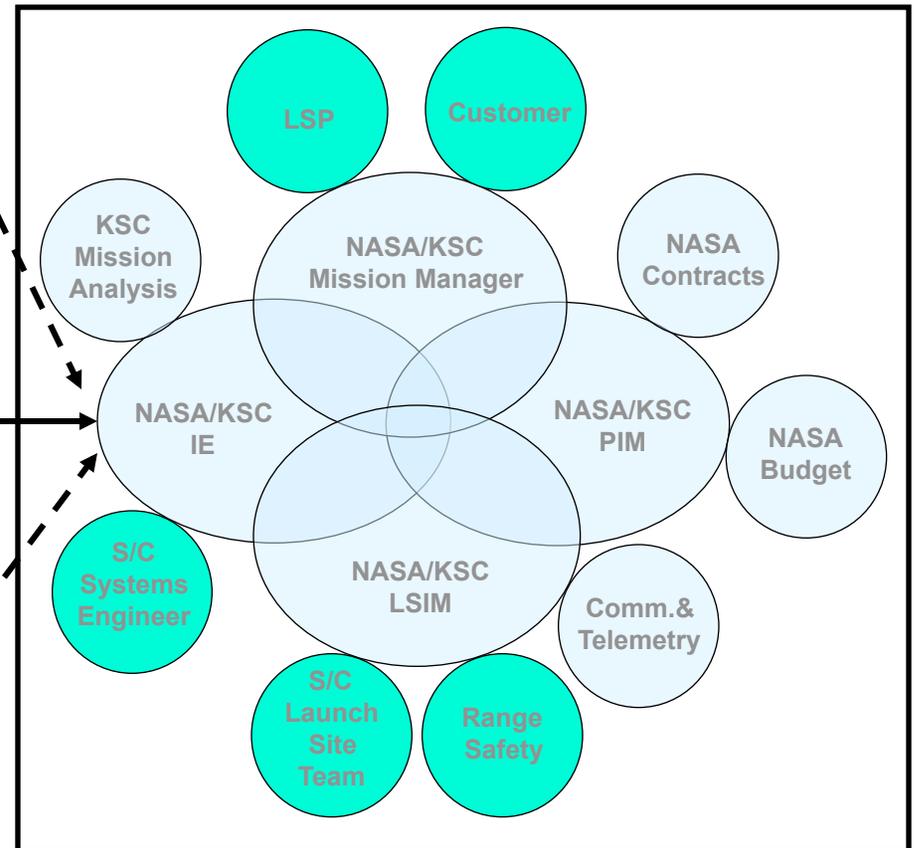
## Core Vehicle Test & Build

Integration & Test Facilities

Integrated Product Teams



## Mission Integration



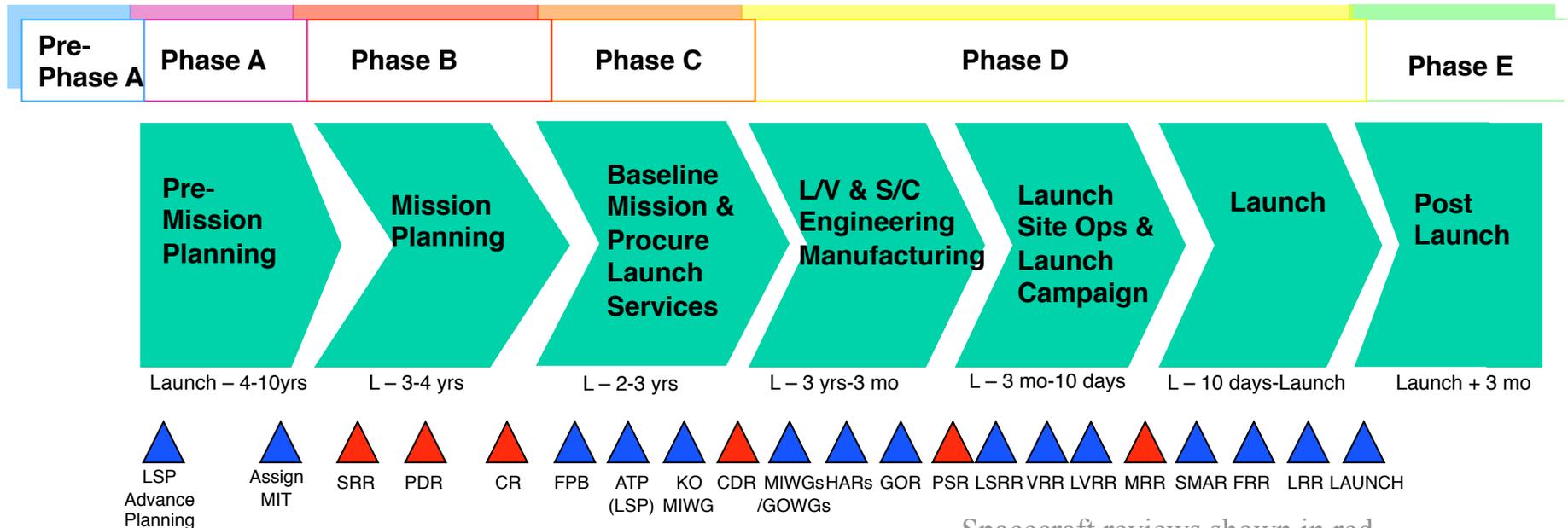


# Ground Rules

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- Any acquisition of a non-contributed domestic expendable launch vehicle proposed for this AO will be procured and managed by the NASA/Launch Services Program (LSP) via the NASA Launch Services (NLS) contract.
- The LSP will competitively select a launch service provider for these missions based on customer requirements and NASA Flight Planning Board (FPB) approval.



Spacecraft reviews shown in red.



## Available Vehicles

- Assumption of a specific launch vehicle configuration as part of this AO proposal will not guarantee that the proposed LV configuration will be selected for award of a launch service competitive procurement
  - Firm technical rationale for sole source justification is required in the proposal, and NASA would have to obtain appropriate approvals.
- The Agency policy, NPD 8610.7, “Risk Mitigation Policy for NASA-Owned and/or NASA-Sponsored Payloads/Mission” has been modified so newer launch service providers are eligible earlier to compete for any of NASA’s missions.



## Available Vehicles - Continued

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- Most likely candidate vehicles for Discovery 2010 will be those awarded under NLS
  - LSP is currently evaluating NLS II proposals
- The anticipated performance available from these rockets are

Case	Performance Range (kg)
<b><math>C3 = 10 \text{ km}^2 / \text{sec}^2</math></b>	
Low with 4-meter fairing	0 – 2840 (4-meter fairing)
Low with 5-meter fairing	0 – 2150 (5-meter fairing)
Medium	2150 - 3100
High	4345 - 5300



# NEPA and Launch Approval Information



## NEPA & Launch Approval Processes

- **NASA HQ (SMD) and the spacecraft provider are responsible for acquiring NEPA & Launch Approval**
  
- **Two Separate Processes (NEPA and Launch Approval)**
  - **National Environmental Policy Act (NEPA)**
    - » **Purpose: Enacted in 1969 to insure consideration of potential environmental aspects/impacts (and reasonable alternatives) in the Record of Decision regarding Program baselines**
    - » **Opens agency decision making policy to the public**
    - » **Also known as Environmental Impact Statement (EIS) Process**
  
  - **Presidential Directive/National Security Council Memorandum #25 (PD/NSC-25) (Carter Administration, 1977)**
    - » **Purpose: Directive required risk associated with launching nuclear spacecraft be quantified; DOE Safety Analysis Report (SAR)**
    - » **Raised decision-making process to the Presidential level**
    - » **Also known as Launch Approval Process**

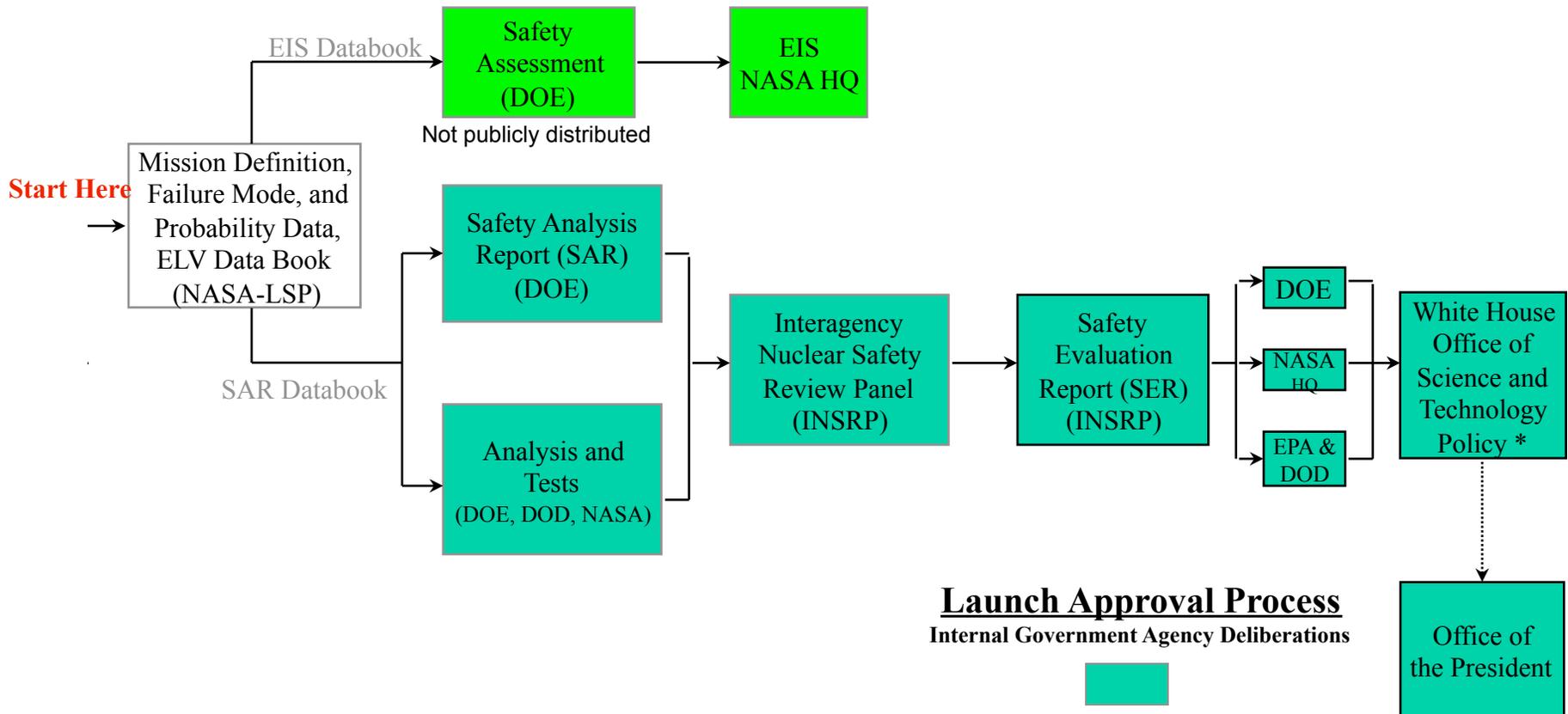


# NEPA & Launch Approval Process Flowchart

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## NEPA Process (Public Review)





# Typical NEPA & Launch Approval Process Durations

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	LV that already has a databook	LV that does not have a databook	Multiple LVs without databooks
NEPA	<b>1 years</b>	<b>2 years</b>	<b>2.5 years</b>
DOE Risk Ana	<b>1.5 years</b>	<b>1.5 year</b>	<b>2 years</b>
INSRP SER	<b>1 year</b>	<b>1 year</b>	<b>1 year</b>
OSTP / White House	<b>6 months</b>	<b>6 months</b>	<b>6 months</b>

- What LV is chosen to perform the mission is critical to the length of time required to complete NEPA & Launch Approval



# NEPA & Launch Approval Process

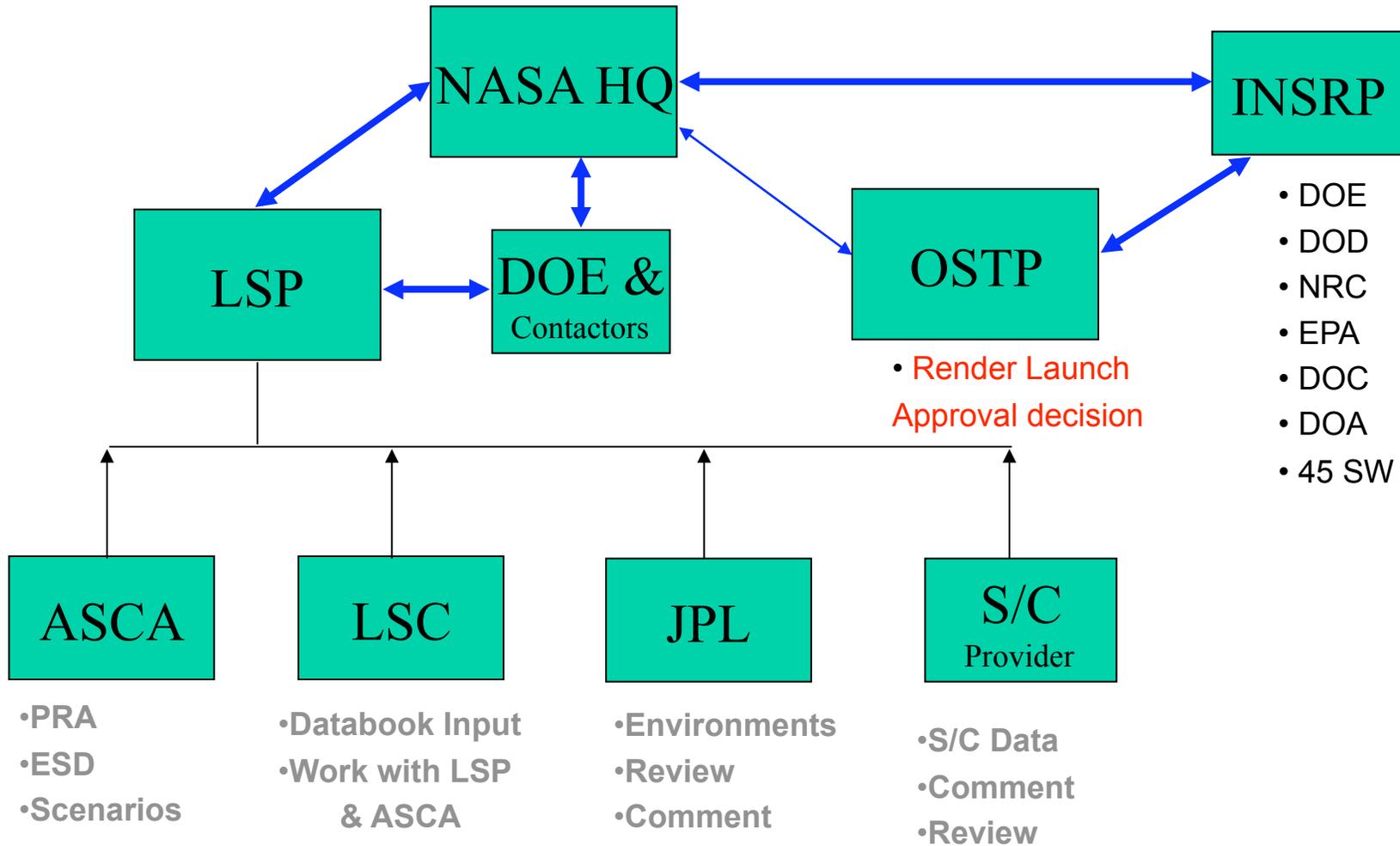
- **Launch Service Program (LSP) is responsible for:**
  - **Launch Vehicle Data Book information acquisition, development & approval**
  - **Managing launch vehicle data required for the NEPA/Launch Approval process**
  - **Generating and submitting SOWs for data required from Launch Service Contractor (LSC)**
  - **Reviewing data provided from LSC's and independent contractors**
  - **Coordinating LSC approval of data generated by NEPA & LA community**



# LV Databook Information Flow

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# Databook Contents

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- Databook:
  - Chapter 1: Introduction
  - Chapter 2: Mission Overview
  - Chapter 3: Launch Vehicle Description
  - Chapter 4: Spacecraft Description
  - Chapter 5: Launch Complex Description
  - Chapter 6: Flight Safety System
  - Chapter 7: Mission Timeline & Trajectory
  - Chapter 8: Accident Probability Analysis
  - Chapter 9: Accident Environments



# Launch Service Budget

- **For Discovery 2010, the launch service costs will be held by NASA Headquarters.**
- **The launch service includes:**
  - **The launch vehicle, engineering, analysis, and minimum performance standards and services provided by the contract.**
  - **Launch Site Processing**
  - **Range Support**
  - **Down Range Telemetry support (launch vehicle only)**
  - **Standard Mission Uniques – these are items typically necessary to customize the basic vehicle hardware to meet spacecraft driven requirements. Already budgeted for are items like Pre-ATP studies such as coupled loads and/or trajectories analysis, a GN2 or pure air purge prior to T-0 and 10,000 Class integration environment.**
  - **Budget does not include launch delays.**



# Summary

- It is the Launch Service Program's goal to ensure the highest practicable probability of mission success while managing the launch service technical capabilities, budget and schedule.
- Questions must be officially submitted to [michael.h.new@nasa.gov](mailto:michael.h.new@nasa.gov); LSP will gladly respond as quickly as possible.